

FAIRCHILD

A Schlumberger Company

**FD700/FDLL700
FD777/FDLL777
Ultra Fast Diodes**

T-03-09

- C...1.0 pF (MAX) @ $V_R = 0$, $f = 1.0$ MHz (FD 700)
- $t_{rr} \dots 700$ ps (MAX) @ $I_f = I_r = 10$ mA, $R_L = 100 \Omega$ (FD 700)
- CONTROLLED FORWARD CONDUCTANCE

ABSOLUTE MAXIMUM RATINGS (Note 1)**Temperatures**

	FD700	FD777
Storage Temperature Range	-65°C to +200°C	-65°C to +200°C
Max Junction Operating Temperature	+175°C	+175°C
Lead Temperature	+260°C	+260°C

Power Dissipation

Maximum Total Dissipation at 25°C

Ambient	250 mW	250 mW
Linear Derating Factor (from 25°C)	1.67 mW/°C	1.67 mW/°C

Maximum Voltages and Currents

WIV	Working Inverse Voltage	20 V	8.0 V
I_O	Average Rectified Current	50 mA	50 mA
I_F	Forward Current Steady State dc	150 mA	150 mA
I_f	Recurrent Peak Forward Current	150 mA	150 mA
I_f (surge)	Peak Forward Surge Current Pulse Width = 1.0 s	250 mA	250 mA

PACKAGES

FD700	DO-7
FD777	DO-7
FDLL700	LL-34
FDLL777	LL-34

If you need this device in the SOT package, an electrical equivalent is available. See FDSO1700 family.

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ELECTRICAL CHARACTERISTICS (25°C Ambient Temperature unless otherwise noted)

SYMBOL	CHARACTERISTIC	FD700		FD777		UNITS	TEST CONDITIONS
		MIN	MAX	MIN	MAX		
V_F	Forward Voltage	0.89	1.10	0.89	1.35	V	$I_F = 50$ mA
		0.81	0.95	0.81	1.00	V	$I_F = 20$ mA
		0.76	0.88	0.76	0.94	V	$I_F = 10$ mA
		0.64	0.74	0.64	0.79	V	$I_F = 1.0$ mA
		0.52	0.61	0.52	0.64	V	$I_F = 0.1$ mA
		0.42	0.50	0.42	0.53	V	$I_F = 0.01$ mA
BV	Breakdown Voltage	30		15		V	$I_R = 5.0$ μ A
I_R	Reverse Current		50		100	nA	$V_R = 20$ V
			50		50	nA	$V_R = 8.0$ V
						μ A	$V_R = 20$ V, $T_A = 150^\circ$ C
						μ A	$V_R = 8.0$ V, $T_A = 150^\circ$ C
τ	Minority Carrier Lifetime		450		450	ps	(see Note 2)
t_{rr}	Reverse Recovery Time (Note 3)		700		750	ps	$I_f = I_r = 10$ mA, $R_L = 100 \Omega$
C	Capacitance		1.0		1.3	pF	$V_R = 0$, $f = 1.0$ MHz

NOTES:

- The maximum ratings are limiting values above which life or satisfactory performance may be impaired.
- Measured as suggested by S. M. Krakauer, IRE Proceedings, Volume 60, July 1982, pp. 1874 - 1875.
- Recovery to 0.1 I_f .
- For product family characteristic curves, refer to Chapter 4, D3.